

WATER QUALITY TEAM MEETING NOTES

June 8, 2004

**Corps of Engineers Portland District Offices
Portland, Oregon**

1. Introductions and Review of the Agenda.

Mark Schneider of N OAA Fisheries, WQT co-chair, welcomed everyone to the meeting, held June 8 at the Corps of Engineers' Reservoir Control Center (RCC) in Portland, Oregon. The meeting was facilitated by Robin Harkless. The meeting agenda and a list of attendees are attached as Enclosures A and B. Please note that some of the enclosures referenced in these meeting notes may be too lengthy to routinely attach to the minutes; please contact Kathy Ceballos (503/230-5420) to obtain copies.

2. SYSTDG Dissolved Gas Model Demonstration.

Jim Adams provided an introduction to this agenda item, briefly describing the history of the SYSTDG development effort, how it is used and who operates it within the Corps' RCC offices. He then yielded the floor to Laura Hamilton, who provided a presentation titled "SYSTDG and Real-Time Operations." Hamilton touched on the following major topic areas:

- Model capabilities: real-time spill management for the Columbia from Bonneville Dam to Grand Coulee and the Snake River from the mouth to Lower Granite Dam and the Clearwater from its confluence with the Snake to Dworshak Dam, forecasting % TDG, tracking TDG across the Columbia basin and contains process description.
- Limitations: no simulation of heat budget, does not directly simulate alternative water control measures, etc.
- Data acquisition and management
- The 10 specific daily tasks the RCC runs using SYSTDG
- The two databases from which SYSTDG pulls its data: FMSmaster and weatherklb.
- Filter implementation
- Project worksheet (examples)
- Model input data (examples)
- The sub-parts of SYSTDG: the execute SYSTDG section, the model input section and the model results section
- Sample SYSTDG model outputs
- Step-by-step approach to using SYSTDG in real time (13 steps)

In the course of this presentation, the group offered a number of clarifying questions and

comments, to which Hamilton and Adams responded. Some of the topics discussed included the specifics of how the nightly spill caps are set and how spill volumes are adjusted at each project, the exact hours in which spill volumes and TDG levels are calculated (there was some confusion about whether they should be calculated on a 24-hour or a 12-consecutive-hour basis; Chris Maynard said he will discuss this question with others at WDOE and report back to the WQT at the group's next meeting).

Adams noted that the Corps will be producing a year-end review of 2004 SYSTDG performance once the spill season ends; so far, it seems to be performing well, although Adams noted that 2004 has been an easy water year so far – there have been no large surges in river flow to cause forced, uncontrolled spill. Once we get one of those, he said, we'll get an idea of just how useful SYSTDG can be under real-time, real-world circumstances. Hamilton added that, at McNary, for example, involuntary spill does not occur until total river flow exceeds 330 Kcfs. Mike Schneider noted that the SYSTDG calculations for Bonneville have frequently – but not always – been running higher than the observed TDG levels, particularly when the tailwater elevation below the corner collector is high. He said he is in the process of evaluating this phenomenon and will address it once adequate data on gas generation at the corner collector is available.

Hamilton demonstrated SYSTDG's capabilities by producing an actual model run; she then described how parameters are modified in response to changes in operation. The group also discussed potential ways to incorporate the various risk factors into the SYSTDG analysis – the risks of not meeting fish spill targets, of exceeding the TDG caps or of not meeting load, for example.

Nancy Yun then provided an overview of SYSTDG's "hindcasting" abilities; she noted that weather makes a large difference in TDG production. She said she had changed one factor at a time – wind, water temperature, spill volumes etc. – to evaluate the effects of these parameters on model outputs. The purpose of this exercise is to monitor the actual performance of the model; Yun said that, when she sees discrepancies between the model results and actual results, she contacts Mike Schneider to discuss the reasons for those discrepancies. And for the most part, the model's predictions have been pretty accurate? David Benner asked. Yes – it's generally within about 2%, 3-4% at worst, and that's pretty good, Hamilton replied. Generally, I've been pleased with the model results, added Mike Schneider.

The discussion then turned to the potential to expand the capabilities of SYSTDG in the future; the group noted that there are a variety of possible areas where it could evolve. As the region comes to more decisions about the placement of fixed monitoring locations, that will factor into future model capabilities, said Mike Schneider. Hamilton added that, as the WQT has seen at today's meeting, the model is quite user-friendly. She also demonstrated the model's temperature modeling capabilities.

Maynard said he was quite impressed by the model capabilities; he said he will continue to think about the 24-hour vs. 12 consecutive hour average question, as well as the question of how TDG exceedences are addressed. The group briefly discussed the topic of trading; John

Picinnini observed that clearer guidance as to when and how trading can occur would be helpful. We're working on it, Maynard replied.

Mark Schneider said the reason he had requested this presentation was to give the WQT a better conception of how the SYSTDG model works; he said that what he is taking home from today's meeting is how impressed he is with this new tool, and how dramatically it has improved the region's ability to manage spill and TDG. He thanked the Corps for a very informative presentation. Mike Schneider thanked BPA for its support in developing the model.

With that, today's meeting was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.